

RESEARCH PROJECT PLAN

USGS-Biological Resources Division

Midcontinent Ecological Science Center

Social, Economic, and Institutional Analysis Section

Project Title: **Natural Resources Management Decisions:
Citizens' Knowledge, Values, and Perceptions in
the Southern Greater Yellowstone Area**

Plan of Work:

Background and Justification:

[M]any of society's greatest challenges lie at the interface of ecology and the social sciences" (*Science*, Vol. 282:279). Management of the Nation's land and water resources is among the daunting tasks at that disciplinary juncture. In particular, challenges are created at the human-wildland interface, that arena where interactions occur between human activities, resource use, and values and physical and biological components of the environment. Addressing environmental issues arising at this interface requires development and implementation of resource management policies, relying on collaboration between natural resource managers, government officials at all levels, and the public. To be successful in the collaborative process, managers must learn to assess public opinions and values, solicit citizen input, and communicate with the public about natural resource issues and choices. Managers must know the economic effects of proposed changes, community perceptions of existing and proposed conditions, citizen knowledge of changes in resource use, and institutional opportunities and constraints. Although managers and scholars generally agree that greater inclusion of the public is important for decision-making, generally accepted means to accomplish that task are lacking (Dennis 1998; Tuler and Webler 1999). However, principles for public participation need to be determined in part by the context of the management issue (Tuler and Webler 1999) and "partnering" with the public (BLM 1998) is considered an appropriate approach. This approach may be labeled: collaborative decision making (Kearney, et al. 1999).

The Social, Economic, and Institutional Analysis Section (SEIAS) has designed an interdisciplinary research strategy involving three interrelated Research Project Plans to answer the question:

What are the obstacles and opportunities for collaborative planning at the human-wildlands interface?

These three studies have been developed under a broader Research Strategic Plan entitled "Economic and Social Factors in Management of Habitats at Risk" (December 1998). We will specifically focus on the collaborative planning process for ungulate management in the southern Greater Yellowstone Area (SGYA) (see map and setting description below). Our aim is to provide managers with specific information needed for the process and also to contribute to the implementation of successful models for future collaborative planning.

The Greater Yellowstone area (GYA) has been a high-profile candidate for efforts to restructure natural resources management at the ecosystem level for nearly two decades. Because of the national and international significance of the area, resource management activities in the GYA act as precedents for other regions. It is one of the largest, most nearly intact complexes of wildlife and wilderness in the lower 48 states (Greater Yellowstone Coalition 1986, Hocker 1979) with over 90% of the land being in public ownership. Because of the extensive public land, agencies with common, overlapping, or co-terminus jurisdictions but differing mandates can find themselves at odds.

The public lands in the SGYA support an economic base of recreation, tourism, resource extraction, and ranching. Tourist visitation and permanent residents have increased in the past 15 years and thus have driven the expansion of the service economy. As a result, the communities in and around the SGYA are rapidly changing. In Teton County in 1998, the income of those moving to the county was five times that of those leaving the county; thirty percent of county residents are seasonal second homeowners (William Collins, Teton County Planner, personal communication). This population growth has resulted in increased interactions between people and their environment, including wildlife populations.

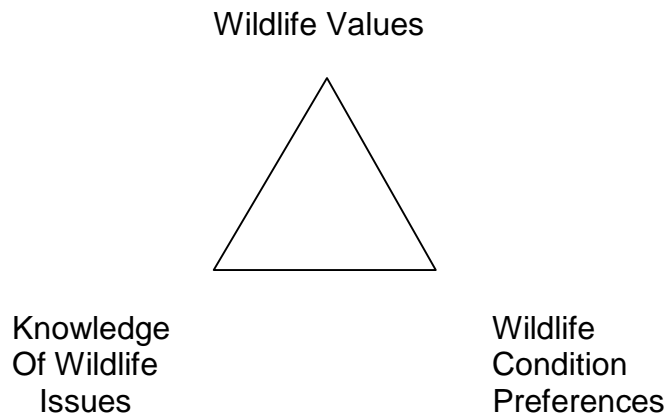
For example, feeding stations set up for elk (*Cervus elaphus*) in the SGYA have resulted in concern about ecological effects of this practice. Feeding stations interfere with natural population regulation processes such as food limitation, resulting in large ungulate concentrations (see Coughenour and Singer 1996). Potential impacts include disease outbreak, such as brucellosis and other diseases resulting from increased interaction between elk, bison (*Bison bison*), and cattle (*Bos taurus*). In addition, intensive ungulate browsing can limit regeneration of shrub and tree species that provide habitat for passerine bird species (Jackson 1992). These ecological issues have economic, social, and institutional ramifications; for example, ranchers face potential economic losses from interspecific disease transmission, and economic benefits derived from hunting and tourism are at risk. Successful development and implementation of

management plans addressing these issues necessitates incorporation of ecological and sociological understanding specific to this region.



OBJECTIVES

The objective of the research described in this project plan is to assess the integration of wildlife values, knowledge of wildlife issues, and wildlife condition preferences as illustrated in the diagram below. (figure 1)



(figure 1)

PROCEDURES

Wildlife values held by residents of the southern Greater Yellowstone Area [SGYA] will be surveyed and compared with socio-demographic variables. Residents' wildlife knowledge will be similarly assessed and compared. Finally, public preferences will be assessed for ungulates and their habitat landscape conditions that result from different management options. These three measures, then, will be compared with each other to determine the relative strengths of correlation between values and preferences, knowledge and preferences, and values and knowledge. Other variables certainly could be tested in such a model: information levels, economic effects, social status; this model is simplified specifically to test the strengths of relationships among preference, knowledge, and wildlife values.

Another component of this study is the analysis of preferences for the type of decision making process for ungulate management options. This component may allow managers to understand the type of decision process considered most effective to various players involved. Examples of types of decision processes include negotiation, collaborative group processes, decision made by technical experts, arbitration, or other arrangements.

These comparisons will be used to test the following hypotheses:

H1: People's preferences for ungulate management conditions are more closely associated with their wildlife values than with their knowledge of ungulate management.

H2: Preferences for landscape features that represent cultural values differ among demographic groups (income, age occupation, education, etc.).

H3: Cultural values represent a view of nature that is not related to a scientific concept of ecological function.

H4: People's preferences for type of process to resolve ungulate management conflicts are more closely associated with their wildlife values than with their knowledge of wildlife issues.

The next section discusses the components of this study plan. Because values, knowledge, and perception are closely tied to each other, we have integrated these approaches to address our research question. In this section we will cover disciplinary underpinnings, definition of key terms, knowledge gaps and key questions that will contribute to answering the overall research question. The principal theoretical contribution will come from the testing of the hypothesis concerning the interrelations of values, knowledge and preferences

Values and Attitudes Toward Wildlife

The field of "human dimensions of wildlife management" has grown out of concern about how people's values affect and are affected by wildlife management (Purdy and Decker 1989). In its simplest form, a human dimensions approach can be described in two parts: 1) the acquisition of sound information that explains human thought and action regarding wildlife using the concepts and methods of social science and 2) determining how to use that information in wildlife decision making. (Manfredo et.al. 1995). Successful and effective fish and wildlife programs can be developed only when they are based on a thorough understanding of wildlife populations, habitats and people (Duda, et. al. 1998),. Attitudes toward wildlife are important to an understanding of wildlife because they reflect a broader set of beliefs, feelings and social norms (Kellert, 1980a). Exploration of fundamental beliefs and values concerning wildlife and the environment should be an integral part of perceptual research and is a necessary component of attitudinal and behavioral studies. Recognition by managers of the diversity of values and attitudes has led to numerous studies describing wildlife values in society (Kellert, 1980b; Kellert, 1985; Fulton, et. al., 1996; and Reading et. al. 1999). With all of this, managers still have a hard time with the practical application of values information to wildlife management (Purdy and Decker, 1989). The purpose of this research is to assist managers in accessing the social values of wildlife and wildlife management.

Similar to the classic theoretical approach of Rokeach (1968,1973, 1979) the term **value** in this study refers to the single stable belief tied to an individual's desired self concept as a moral and competent being. Kristiansen and Matheson (1989) go further to state that the importance that people ascribe to various values determine their more specific attitudes and that these attitudes, in turn,

affect their overt behavior. Attitudes are defined as basic evaluative beliefs and serve as building blocks of attitudinal positions and behaviors. (Brown and Manfredo, 1987 and Manfredo, et. al., 1995). Previous research by Kellert (1985) has suggested that there are at least seven discrete values that can be specified as they relate to wildlife and wildlife management these include:

- 1) *Naturalistic*: outdoor recreational value; 2) *Ecologicistic*: ecological value;
- 3) *Moralistic*: moral or existence value; 4) *Scientistic*: scientific value;
- 5) *Aesthetic*: artistic or symbolic value; 6) *Utilitarian*: practical or material value and 7) *Humanistic*: cultural, symbolic and historical value.

Although, according to Brown and Manfredo (1987) several researchers have noted a problem in using the term *values* because of the ambiguity of its definition. Values have been discussed in terms economic valuation of wildlife, wildlife value orientation, and as a set of broad, basic beliefs about appropriate relationships between humans and wildlife. (Zinn, et. al 1998). In this study we will follow Fulton et. al (1996) identified list of basic wildlife belief dimensions which were used to reflect major issues concerning wildlife in Colorado. This hierarchical scale reflects a relationship between broad wildlife value orientation and specific attitudes towards wildlife management (Fulton et. al 1996).

Wildlife Use – philosophy regarding utilization of wildlife for human benefits

Wildlife Rights – philosophy about the rights of wildlife

Recreational Wildlife Experience - importance of wildlife to recreational uses

Bequest and Existence – importance of knowing that healthy populations of wildlife currently exist and ensuring that these populations exist for future generations

Hunting/Anti-hunting- Fishing/Anti-fishing – focused on whether hunting/fishing is a humane or positive activity

Residential Wildlife Experience – importance of wildlife in the neighborhood and around the home

Wildlife Education – importance of learning and teaching others about wildlife

Even though incorporating values into the policy area is critical for wildlife preservation, values, attitudes and perceptions are rarely assessed, understood or addressed (Reading et. al, 1999).

According to Manfredo et. al (1995), a great deal of research done in this field has been largely descriptive and “too often this research offers no conceptual foundation and makes no suggestion about theory development.” However, they go further to suggest that there are several knowledge gaps that require further investigation. One area for investigation deals with understanding the factors that lead to human-wildlife interaction. A second area investigates the factors that are associated with people’s responses during specific types of wildlife encounters. A

third area, and one that we will consider closely, is the one questions the extent to which interactions with wildlife effect knowledge of wildlife and what effect interactions with wildlife, particularly at an early age, have on values and attitudes towards wildlife?

Because there are many disparate philosophies concerning values and value orientation a theoretical approach is needed to extend the concepts. A comprehensive understanding of human-wildlife relationships across a range of spatial and temporal scales enhances our ability to manage natural resources and minimize conflicts among competing uses of the resource.

Landscape Design

A key concept of landscape ecology is that landscapes are by-products of natural and cultural evolutionary forces. Landscape ecology has a tradition of an interdisciplinary and human-oriented approach, incorporating natural and social factors in understanding the forces that shape ecological systems (McIntyre et. al 1999). It is necessary to examine culture in landscape ecology because of two key premises: first, culture structures landscapes, and second, landscapes influence culture (Nassauer 1995). The term culture encompasses political systems, aesthetic preferences, and social conventions. Individuals are instruments of culture working within an ecological framework.

In the SGYA, human demographics are changing in terms of age, income, occupation, and cultural background. These dynamics bring varying perspectives of landscapes that over time have influenced wildlife populations and the landscape. Managers of fish and wildlife refuges are under direction to take an ecosystem approach to wildlife conservation. Their goals include conservation of wilderness values, use of scientific information and expertise for management decisions, and increased communication of values of the National Wildlife Refuge System with the public. Information on cultural values and perspectives that influence landscapes will assist managers in meeting these goals.

The objectives of this study are to identify cultural values that influence landscapes in the SGYA, particularly in and around the National Elk Refuge in the Jackson Valley, and to design landscape scenarios that incorporate cultural preferences and can be used to introduce ecologically beneficial landscape change.

Knowledge of Wildlife Issues

Rushefsky (1989) concluded that “there has been little work on relating perceptions, ideology, employment, and so forth, with actual decisions.” Pierce et al. (1992) reported how environmental policy was shaped by opinion leaders in

Michigan and Ontario, Canada. SEIAS researchers will determine the knowledge of and attitude toward ungulates and ungulate management held by the general and attentive publics in the SGYA and will relate those data to success in making collaborative decisions.

The first half of this century was marked by the development of theories describing the pluralist character of American politics with public input to decisions and decision makers channeled through interest groups (see, for example, Truman 1951). Pluralist interest group theory came under significant challenge during the last half of this century. Among the arguments made against the theory is one stating that interest groups are unfairly restrictive (Bachrach 1967; Lowi 1969). After the Vietnam War, analysts began to observe a decline in the relevance of traditional interest groups in favor of mandated, formal mechanisms of public involvement as well as civil disobedience, electoral initiatives, and referenda (Loomis 1983). There now exists the perception that the general public has the right to exercise influence over a wide range of issues, including those effecting the environment. Pierce and his colleagues (1992) argued that although traditional interest groups have lost policy influence and the general public has come to expect a more direct voice in policy-making, there remains a connection between interest groups and the policy preferences of the general public.

It is anticipated that the connection between interest groups and public policy preferences is manifested in a congruence between the attentive public and the general public in terms of scientific knowledge and attitudes (Lamb and Lovrich 1987). In the SGYA, the congruence should be evident in the field of ungulate management. We expect that a record of collaborative decision-making will help us identify the attentive public. Our research will reveal specific areas where there is congruence and potential for effective collaboration in circumstances where the attentive public shares similar attitudes and levels of knowledge with the general public.

Wildlife management is one issue facing American society that transcends the domain of traditional interest groups. Policy-making in this field is expected to reflect more involvement from individual citizens. This involvement is characterized by:

- (1) heightened demand for having a say in policy outcomes on the part of individuals... and (2) the articulation of relatively novel policy demands on the political system by new politics-oriented people, which often features a high degree of technical and scientific content affecting complex value tradeoffs... (Pierce et. al 1992:12).

Who are the "politics-oriented" people of the SGYA? What are their attitudes toward management of elk, deer, moose, and antelope? What technical or scientific knowledge do they hold? What are the sources of that knowledge? Is it true that group characteristics, conformity to group norms, and severity of the problem influence the acceptance of new policy (Brief et. al 1972)? Is the

general public also active in decision-making? Is there an association between attributes of the attentive and general publics?

If, as Pierce and his colleagues (1992:146) argued, “the ‘real’ battles lie in capturing the definition of problems and structuring the context for the discussion of alternative policy choices,” then knowledge shared between the attentive public and citizens is vital for successful natural resource management strategy. Building that strategy requires understanding sources of citizen information.

Research on policy knowledge has a long history. In separate studies, Guither in 1960, Young in 1960, and Ross in 1958 (Extension Editorial Office 1964) found that farmers’ information came principally from magazines, but about half of those responding said that their favorite sources of new information came from a combination of friends and neighbors and magazines. The picture was a little different when respondents were asked for sources of information about a particular issue (fertilizer), where Jones’ 1959 study (Extension Editorial Office 1964) found that almost half relied on the “seed and fertilizer dealer.” Jones reported that there was a difference in responses depending on whether the researcher was asking about “channels” of information or “sources” of information. The work of Oskam (1995) supports this finding. In her study, farmers indicated a preference to receive information from magazines, but the mix of other information sources changed when the issue shifted. Agricultural engineers preferred to receive information from workshops and seminars and rated newspapers and magazines much lower as sources of information. In a study of knowledge about endangered species, Reading and Kellert (1993) found the most important source of information about prairie dogs to be personal experience.

The sources of information about natural resource, forest, and ecosystems have been investigated by several scholars. Findings typically demonstrate that newspapers are a very important source of such information (e.g., Shindler, et. al 1996; Lamb and Ponds, submitted). But there is evidence that information sources are variably relied upon. For example, Oskam and Hudson (1999) found that television was the most believable source for general news while newspapers were the most believable source for advertising. Oskam and Hudson (1999) also found that media believability differed by the age and education of respondents.

Steel, et. al (1994) tested whether the level of education and policy knowledge predicted citizen perceptions of environmental health risk. They found that, in the United States, environmental and political value orientations were stronger predictors of risk perception than was policy knowledge. However, in Canada perception of risk was associated with policy knowledge. This is a suggestive finding in light of the frequent recommendation that additional education will help resolve conflicts in the SGYA (e.g., Kahn, 1999). It is important to investigate the relationship among policy knowledge, education, social and political value orientation, and perception of wildlife-related natural resource management (especially expected outcomes).

To investigate this relationship it is necessary to measure policy knowledge. Policy knowledge has been measured in several ways. It is common in national surveys to measure knowledge by using a series of true/false questions in which respondents are asked to state whether a statement of fact is true (Kellert 1980b). An example true/false question might be “timber wolves, bald eagles, and coyotes are all endangered species of animals” (Kellert 1980b). In a variant on that approach, researchers have constructed a test of knowledge of “specific information relevant to the most frequently discussed” management policies or scientific findings (Steel, et. al 1990; Reading and Kellert 1993). An example of this approach is the work of Zinn and Andelt (In Press) who used a series of multiple choice questions to assess citizen knowledge. We employed a version of this approach by asking respondents if they knew which of a list of agencies were most influential regarding recreation management on public lands (Lamb and Ponds, submitted). In another part of their study, Reading and Kellert (1993) simply asked respondents “on a scale of 1-5, how much do you know about prairie dogs?”

Another technique is to test respondent knowledge of specific technical terms. One of the first uses of this approach was reported by Pierce and Lovrich (1986). We are among the scholars who have also used this means of assessment (Lamb and Ponds, submitted; Steel, et. al 1990; Pierce, et. al 1989). Results of this approach are reported as a score. For example, where ten terms are assessed according to “Know meaning,” “Heard of but do not know meaning,” and “Have not heard of” respondent answers might be scored 2 for Know meaning, 1 for heard of, and 0 for don’t know. The resulting scores would be summed to produce an index of knowledge (Steel, et. al 1990; Lamb and Ponds, submitted).

Scholars have also found that assessment of policy knowledge should be experienced based and tied to expected outcomes (Pierce, et. al 1992; Reading and Kellert 1993). Shindler and Shelby (1995) pointed out that it is especially important to measure knowledge, perception, and values in the context of changed circumstances (a phenomenon known as “product shift”). This allows assessment of changes as policy evolves and deepens the understanding of what is actually known. Knowledge is also related to expected outcome (Pierce et al. 1992; and Shindler 1997) and it is useful to measure changes in policy knowledge in relation to which outcomes are anticipated and how those outcomes are valued.

Public Perception of Environment

Controversies in public land and natural resource management frequently center around issues of what is real as opposed to what people perceive to be real. It is quite difficult for many resource managers to grasp the fact that “what people perceive to be real” is itself a reality with which they must deal.

How is environment perceived? In his transactional approach, Ittelson (1973) lent early leadership to the field of environmental perception. He defined environmental perception as a “whole experience” in which one can only be a participant, where the distinction between self and non-self breaks down. Under Ittelson’s definition, environments surround us requiring motion and exploration for participation. Environments are multi-modal, providing information to several senses to be simultaneously processed. Environments provide peripheral as well as central information, and they provide more information than can be used at any given time. Perception of environment requires action; environment cannot be passively observed. Finally, according to Ittelson (1973) environment always has ambiance, aesthetic quality, and is encountered as part of social activity.

The way in which environment is perceived is subject to some controversy (Kaplan 1987). Some researchers focus on the affective or emotional quality of perception (Lazarus 1984, Purcell 1986, and Ulrich 1983); while others focus on cognition (Garling 1976, Kaplan and Kaplan 1982, Feimer 1983). Participants in natural resource or environmental disputes often believe their own realities are based on cognition or reason, but those of their opposition on affect or emotion. Ittelson (1973) held that perception was much broader, including affective, cognitive, interpretive, and evaluative components.

Drawing on his own experimental evidence, Zajonc (1978) contended that affect was the first environmental stimulus reaction, spontaneous, preceding cognition via liking or fear; responding to “preferenda” stored in the brain. The first stages of environmental stimulus response Ulrich (1983) generalized to be effects vis-à-vis approach / avoidance behavior. Woodcock (1984) viewed the evidence from these researchers as demonstrating natural selection potential of affect in perception of environment. Preferences for natural environments Tuan (1974) related to allowing the mind to find both peace and excitement.

Environmental perception is largely cognitive, according to Kaplan and Kaplan (1982). They have pursued an informational approach to perception: that humans need to acquire information to be able to order the world they live in. This informational approach includes making sense of the environment, determined by the coherence and legibility of the environment. It also includes the environmental elements that tend to maintain human interest: complexity and mystery. Several studies that lend support to Kaplan and Kaplan (1982) cognitive model (Herzog 1985, 1987a, 1987b).

Knowing an environment requires interpretation, which in turn requires past experiences. Thus, familiarity with environments strongly influences preference (Kaplan and Herbert 1987). Perceived quality of an environment, whether it is positive or negative, is influenced by knowledge, education, and familiarity (Mohd-Shariff 1994). Holmes Rolston (1986) described how geological, ecological, and historical knowledge add to the appreciation of a natural environment. The experience of nature guides the observer toward what to appreciate in the environment through memory, association, and recognition. “A

highly valued landscape may be the locus of one unique experience or of many accumulated [experiences] over time.” (Lowenthal 1978: p.401). Orians (1985) related experience to perception through ease, security, and tranquility in an environment. According to Hull and Revell (1989), familiarity gives meaning to a landscape or environment. But others (Zube and Pitt 1981, and Balling and Falk 1982) offered counter evidence, where persons of quite different culture or home setting show similar evaluations of a single environment.

Nature, without focus, is a confusion of sensuous experiences (Carlson 1979). Therefore, focusing is necessary if the observer is to make sense of the encounter (Mohd-Shariff 1994). Nature invokes awe and rapture, for example the majesty and grandeur of snow capped peaks in the Alps, the Rocky Mountains, and the Grand Tetons (Tuan 1974, Nicholson 1959). On the other hand, nature also evokes anger and aversion, e.g., when watching a pack of wolves take down an elk calf—especially if the wolf pack then just trots away, leaving the dead calf uneaten. Accepting some of these feelings but rejecting others would be to trivialize the experience of nature (Hepburn 1993).

Benefit from nature Kaplan and Kaplan (1989) attribute to the much higher proportion of “involuntary attention” stimuli (attention that does not require effort to maintain), which correlate with interest and curiosity towards nature, than can be found in man-made environments. Hartig, et. al (1991) showed that natural environments relieve mental fatigue, although restorative effects may occur after a delay. These restorative effects can be derived from urban parks, as well as wild areas. Students found more attention being given to self-awareness in wilderness settings while on a college green attention was more focused on others (Taylor 1990). Parsons, et. al (1994) argued convincingly that the affective value of landscape must be raised from the realm of “pretty” or “nice” to the realm of essential for human well-being. Preservation of nature is critical, not simply because human ethics requires to us to recognize inherent value in nature and objects of nature, but from the instrumental value, (i.e., of value to humans, for our essential physical and mental health.)

The strong preference for natural, as opposed to man-made, environments appears to be a cross cultural phenomenon (Kaplan 1992, Kaplan and Talbot 1988, Schroeder and Anderson 1984). This is a critical but somewhat controversial conclusion: Is perception innate, or is it strongly influenced, by culture? There seems to be evidence for both. Uzzell (1991) found meaning in landscapes to be closely associated to one’s social, economic, and political system in which the concept evolved; Nicholson (1959) cited the shifting perceptions of mountains and wilderness in Europe over the past few centuries—from liking to despising to liking again--as evidence of strong ties between perception of nature and culture.

Americans prefer park-like settings with manicured or cropped grass, absence of undergrowth, and scattered mature trees (Balling and Falk 1982, p.7). According to Magill (1992), American environmental preferences run to snow-capped peaks, green mountains, green vegetation, lakes and rivers; and tend to dislike

close, even-sized trees, bare spaces, sparse or brown vegetation, smoke or smog in natural settings. "Natural settings" for Americans mean predominant vegetation and/or water, with man-made features (buildings, cars, etc.) absent or inconspicuous (Ulrich 1986). Herzog (1984) found strong preferences for large trees, old trees, space with concealment, and vantage points.

Environmental perception research has contributed to a broad variety of land and resource planning and management issues. For example, in a literature review of "landscape perception," Zube, et. al (1982) found over 30 articles reporting environmental perception research in forest environments, an equivalent number in outdoor recreation environments, and 26 articles reporting research comparing perception of natural versus man-made environments. Pertinent to the research planned here, is work that has compared the effects of different management practices on the landscape in terms of the variations in public perception. One of the strongest examples of this tie between management and perception is the work done on forest environments. Daniel and Boster (1976) developed the "Scenic Beauty Estimation Method" for measuring the aesthetic effects of varying forest harvesting and management practices, and extended this procedure to mapping of scenic beauty of forests (Daniel et al. 1977). This work was extended to fire management and the effects of severe and light fire intensities on both scenic quality and recreational acceptability by Taylor (1982) and Taylor & Daniel (1984, 1985).

The public environmental perception portion of this project will draw upon this established discipline of applying human perception research to natural resource issues, and the effects of management alternatives on the landscape. The initial focus here will be on ungulate management and the different effects that alternate management practices may have on the environment of the southern GYA. The purpose will be to determine public perception of ungulates, using preference as a means for measuring perception (Kaplan 1985).

DECISION PROCESSES

Gough and Ward (1996) argued that environmental decision making is characterized by uncertainty and risk and that decision support systems can mitigate for these factors by providing better information, greater objectivity, and higher efficiency. Decision support systems can be thought of as understood institutional decision processes.

In endeavoring to understand institutional decision processes, Chisholm (1995) recognized the primacy of the problem solving function of institutions and proposed a theory of institutions based on that function. In Chisholm's (1995) view, institutions exist only in response to perceived problems and without problems the institutions would have no reason to persist. Davis and Davis (1987) used an institutional analysis to investigate change in public lands policy. They noted that making public lands policy is marked by the existence of a

greater array of policymakers—both government and non-government—engaged in advocacy coalitions. While this complex process can allow multiple points of access for citizens, it is a bewildering mixture of organizations and problems looking for a connection. One factor that Davis and Davis (1988) found which might bring some order to this swirling, unpredictable mass is that advocacy coalitions “possess internally consistent belief systems which provide a rationale for action.”

The objective of the decision analysis component of this project is to test the notion that there is a relationship between belief systems and support for collaborative decision making processes. This will be accomplished by an analysis of the relationship between respondents’ wildlife values and their stated preference for type of process. According to Kellert (1980b), attitudes about wildlife may be a surrogate for attitudes about a broader range of social concerns. If this is true in the case of ungulate management, we would expect to see some correspondence between wildlife values and values about how natural resource decisions are made.

The Legal-Institutional Analysis Model (LIAM) is based on the notion that organizational roles can be assessed by measuring two variables: 1) sources of organizational power, and 2) primary decision roles. Organizations are categorized according to a combination of four roles representing two continua: the Broker-Arbitrator continuum and the Guardian-Advocate continuum. Guardians seek to protect the status quo, especially by relying on time-tried decision processes, while advocates demand change in traditional decision processes. This is seen as a values continuum. Brokers seek to manage decisions through trade-offs and bargaining, while Arbitrators promote objective, court-like decisions. This is the process continuum. Organizations are arrayed on each axis of the continuum based on responses to a series of questions found in the LIAM computer program. Guardians tend to prefer brokered decisions, while Advocates favor arbitrated decisions. For a more complete discussion of the LIAM, please see Appendix A.

For this project, respondents’ placement on the Broker-Arbitrator continuum will be analyzed. LIAM questions will be included in the survey that measures wildlife values. The questions will measure respondents’ preferences for type of process for deciding how to manage ungulate populations in the SGYA. Data will be analyzed to determine the relationship between wildlife values and process preferences. If, as Kellert (1980b) argues, wildlife values are reflective of attitudes about broader social phenomena, it should be possible to construct an index of wildlife values and substitute the index for the Guardian-Advocate continuum. The findings will be compared to the LIAM analysis conducted in the project titled “Natural Resources Decision-Making: Factors in Collaborative Planning for the Southern Greater Yellowstone Area” to analyze the consistency of the findings between the two methods of analysis and the validity of substituting wildlife values for the values measured in the LIAM.

PROCEDURE

In the SGYA we have coordinated with federal land managers to select one case of changing human settlement patterns and habitat fragmentation affecting wildlife management on the public lands. That case is ungulate management. In this project we will assess the wildlife values and the knowledge levels of samples of the local, general and attentive public concerning issues of ungulate management in this region. Local residents' and visiting public's preferences for conditions that relate to wildlife management alternatives will also be studied.

First, investigators will review all available literature to develop a theoretical framework that will serve as the basis for integration of knowledge about ungulate management options, ecological dynamics, and landscape change as they are related to knowledge, wildlife values and preferences. In conjunction with this framework we will design the survey instrument. Finally, an essential outcome of this study will be to provide summary documents to clients and attentive publics as well as scientific publications to peer review journals.

DATA HANDLING AND ANALYSIS

Methods for Data Collection

A single survey instrument will be used to evaluate local, general and attentive public in three areas: (1) landscape perception, (2) level of knowledge and (3) wildlife value orientation and specific attitudes towards wildlife management.

The landscape questions will be developed from theoretical perspectives on landscape preference including biological theories (Bourassa 1992) and information-processing theories (Kaplan and Kaplan 1982). The question format for knowledge-holding follow Pierce and Lovrich (1986), modified to include economic implications of alternative management strategies. We will follow Kellert's (1980b) structure for wildlife values, and will also incorporate qualities of existing and modeled "possible" landscapes (Nassauer 1995) in the Jackson Valley. A series of questions from LIAM field will also be included (Wilds 1990). The results of the survey will be used to evaluate our hypotheses. Appropriate statistical tests will be determined through preliminary analysis of a simulated data set before the study begins.

Study Design

The Survey Instrument

The survey instrument will employ fixed alternative questions plus space for comments. The respondents will be queried about their understanding of selected terms used in ungulate management and attitudes in the form of responses to potential management practices. The technical terms will be

developed and evaluated in conjunction with natural resource managers who are partners in this study. Three questions will be developed to measure respondents' process preferences. These questions will assess respondents' preferences for and belief in the efficacy of alternative decision making processes for ungulate management decisions.

The survey questionnaire for this collection will be pre-tested with a small group of volunteers in order to assess content, clarity, and respondent burden. Based on the volunteer's comments about the questions, changes will be made to questionnaire.

Perception Testing

Models of landscape change, given various ungulate management options, will be used to develop scenes depicting landscape and wildlife conditions resulting from management alternatives. Ongoing ecological studies¹ will provide information needed to predict landscape change given levels of ungulate populations. These changes may include shifts in dominant vegetation, visibility of wildlife, and changes in stream/riparian configuration. National Elk Refuge managers will define ungulate management options to meet agency priorities at the national and local levels. Digital photographs of the study area will be used to develop management alternative landscapes.

Because the appearance of landscapes communicates cultural values, we will incorporate features that will represent cultural significance (e.g. aesthetics) by enhancing the images of natural landscapes. The information gained from this part of the research will be used to create landscape scenarios that incorporate cultural preferences and can be used to introduce ecologically beneficial landscape change.

The perceptual research component will assess public preferences for different herd and landscape conditions that have been identified in the ecological condition models, and presented to the public as "alternative" landscapes. Alternative landscape and wildlife condition photos will be randomly mixed, and presented to respondents for their assessment of landscape scenic quality and of the perceived effect upon landscape uses (Permanent, such as housing; Intermittent, such as recreation). Assessments are recorded on score sheets provided, using a range of score from 1 = Extremely poor (scenic quality or use potential) to 10 = Excellent (scenic quality or use potential). A sub-sample will be asked to rate "ecosystem health," rather than "use potential," as a measure of congruence between ecological definition and public perception of this issue.

¹ Singer, F., USGS, Fort Collins, Colorado: "Bison interactions with elk and predictive models of bison and elk carrying capacity, snow models, and population management scenarios in the Jackson Valley"

Sampling

Phase One: A simple random sample of the local residents and a sub-sample of the attentive public (e.g. those who are actively involved in citizen organizations) in SGYA has been suggested for this research. The respondent universe for this collection includes approximately 1200 households. A survey sampling clearinghouse will be contracted to provide a mail sample for this study. A valid sample of names from their most recent database includes data collected from residential telephone directories, auto registrations, and National Change of Address files released monthly by the U.S. Postal Service. Researchers can expect a “deliverable rate” of between 85% and 87% using this method. Dillman’s (1978) *Total Design Method* documents appropriate ways to ensure high response rates in mail back surveys for social science research. It is expected that there will be approximately a 67% return rate. The surveys will be mailed from and received by the staff at the Midcontinent Ecological Science Center. The returned surveys will be given an identification number and the data will be coded and entered into an SPSS™ data base.

Phase Two: In the survey discussed in phase one, all respondents will be asked whether they have access to the World Wide Web. Those who respond affirmatively will be sent a card requesting that they go to a specific site on the Internet to evaluate alternative landscape and ungulate herd conditions, depicted in digital photo images loaded on that site. The “response sheets” will be loaded onto the site to allow direct, on-site response to scenic quality and to landscape use potential. The resulting data will be downloaded regularly and entered into the SPSS™ data base.

Samples of resident publics for meetings to conduct perceptual assessments will be drawn by requesting participation from established public organizations in the Jackson Hole region that specifically are not associated with this resource management question.

Because the follow-up Internet survey will be drawn from a randomly selected sample of citizens, results could be used to characterize the knowledge, values, and perceptions of all those who have Internet access. Ability to generalize to the population of Internet users will be reduced if fewer than 400 people complete the follow-up Internet survey.

Phase Three: The alternative landscape images will also be presented in public meetings to accommodate public evaluations of both aesthetic quality and the effect of possible landscape uses. Respondents in Phase One who do not have Internet access will be invited to one of these public meetings. Participants in these public meetings who did not participate in the mail survey can fill out surveys, representing a sub-sample for the wildlife knowledge and value survey. Public meetings will subsequently allow discussion of ecologically beneficial landscape change. The Internet site will also include a “comments” field for further input. The usefulness of this approach to the collaborative planning

process will be evaluated by obtaining feedback from managers and public participants.

If additional funding becomes available, the survey publics will be expanded to include visitors to the SGYA. If this becomes feasible, two methods of visitor contact will be employed: First, an Internet-linked PC would be placed in the Interagency Visitors Center in Jackson, and volunteers would be instructed in selecting a random sample of adults to steer to this computerized survey. Both the knowledge-holding / values survey and the landscape preference assessment images and evaluation instruments would be loaded into this interactive PC station. Second, visitor lists maintained by public land management agencies in Jackson Hole NPS, FWS, USFS, BLM would be used to generate a random mailing of the survey instrument, and the same follow-up procedure as for area residents, vis-a-vis the Internet, would be followed. The public meetings portion would be omitted. Again, a sample of 1200 will be sought.

Additional funding will also allow use of digital terrain models, ground and aerial photographs and satellite imagery to be explored for development of models and images. These data sources would allow greater flexibility in creation of "possible" landscapes.

Data Analysis

Four component concepts will be examined in this research:

Wildlife Values (Value Orientations): Using scales derived from Kellert (1985) and Fulton et al. (1996), individuals wildlife values will be assessed and scaled.

Landscape and Ungulate Population Condition Preferences: These conditions will be represented in a series of randomly mixed photographs and digital photo manipulations to show the range of landscape and population conditions predictable from different management alternatives. The depictions will be constructed using a combination of information provided by resource managers, and conditions predictable in spatial ecological models.

Wildlife Issue Knowledge Holding: Using the approaches adopted by Pierce and Lovrich (1986) and Lamb and Ponds (submitted), individual's knowledge of ungulate management issues will be assessed and scored. Respondents' sources of information will also be examined.

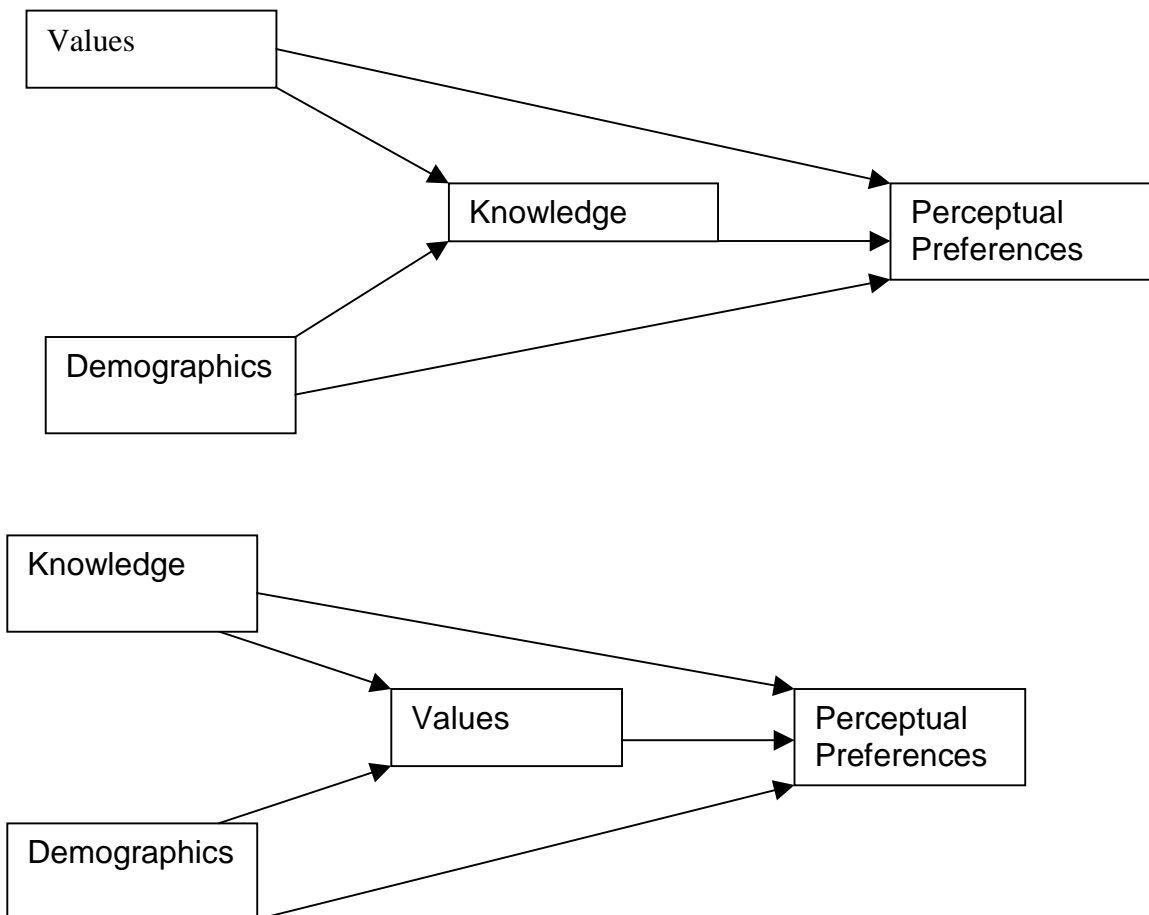
Demographics: A series of demographic and cultural parameters will be measured, including age, sex, education, income, etc.

Summary statistics and cross tabulations will be assembled for each of these parameters. A correlation matrix will be constructed to determine similarities in knowledge holding, wildlife values, and landscape preference among subsample

groups: local population; attentive publics; and, funding permitting, visitor population. One-way ANOVA's will be used to determine differences among mean responses to knowledge, values, and preferences by the subsamples.

The study hypotheses will be tested using structural evaluation analysis. Confirmatory factor analysis and reliability analysis will be used to determine the internal consistency of the latent constructs. When necessary, variables will be standardized (mean = 0, variance = 1) before constructing the scales. LISREL will be used to test the predictive validity of path models and to examine the potential mediation role of value orientations or knowledge mediation occurs when the paths between predictors and mediator and between mediator and criterion are significant while the direct paths from predictors to the criterion are not significant.

Alternative hypothetical pathways may look like these: (figure2)



(figure 2)

Sponsor Workshop For Presentation Of Results

Federal and state land and resource managers, stakeholders, and other interested parties will be invited to a workshop to display and discuss the results of the several projects. In particular, how the results can be integrated across studies, and how they can be utilized by resource managers will be major workshop topics. In addition, the scientists involved will write a series of articles for submission to professional, peer reviewed journals, as well as subject and management periodicals, and for presentation at scientific meetings.

Additionally, landscape images and all input collected at public meetings and over the Internet will be available to refuge managers and the public. Landscape models and methodologies will be published in peer-reviewed journals. An evaluation of the use of "possible" landscapes in the collaborative planning process will be included in the results.

USERS

The list of potential clients is likely to also be very large. These will include the BRD and other federal physical scientists involved in the GYE project, the U.S. Fish and Wildlife Service, the U.S. Forest Service, the BLM, National Park Service, state wildlife management agencies, private sector regional and state conservation agencies (e.g., the Sierra Club), consortiums of regional, state and private management agencies, and local colleges. Tribal involvement in the GYE project may also be considerable; the SEIAS will make a concerted effort to interact with regional tribes.

TECHNOLOGY TRANSFER

This is closely related to Task Four, above. We intend to disseminate periodic reports of research in progress to our client organizations. These will be produced as electronic and printed reports to collaborating agencies and other interested parties. In addition, landscape images that incorporate cultural values and ecologically beneficial landscape change will be produced for use in educational and decision-making discussions.

LOCATION

This work will be primarily conducted in the offices of the Midcontinent Ecological Science Center in Fort Collins, Colorado. However, occasional data gathering efforts will be conducted in the SGYA.

WORK SCHEDULE

Strategic Planning concludes	12/1998
Project Planning concludes	10/1999
Literature Review concludes	11/1999
Task One concludes	02/2000
Task Two concludes	12/2000
Task Three concludes	10/2001
Workshop scheduled for	03/2002
Publications completed	10/2003

PRODUCT SCHEDULE

(1) Review the literature and write a study plan with budget, time lines, and designated deliverables that incorporates key elements of the literature review; and have the study plan peer reviewed. First draft ready by 6/15/99; final draft ready by 9/1/99; approved study plan ready by 10/1/99.

Product: Successfully peer reviewed study plan.

(2) Select the GYE study sites; design the surveys, select the issues and the participants for the workshops. Prepare OMB Paperwork Reduction Act submission. First draft ready for the written documents 9/1/2000.

Product(s): draft versions of surveys and perception assessments submitted to OMB for review and approval.

(3) Final approval of survey(s) by OMB by 3/30/2001. Surveys are mailed and perception assessment groups are contacted after OMB approval.

Product: Final versions of surveys.

(4) Create survey and perception test database and code books. Surveys and preference assessments received, and the data entry and preliminary analysis of the results are completed 7/30/2001.

Product(s): Completion of the databases

(5) Write draft versions of peer review articles; send the articles out to peer review; submit the articles to journals; from 1/1/2003 to 12/15/2003. Conduct the final consultations with clients as the papers are being written and peer reviewed.

Product Research study manuscripts.

Work is scheduled to be completed by 10/30/2003

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Budget:

Project Plan Title: Start Complete
Natural Resources Management Decisions: Citizens"
Knowledge, Values, and Perceptions in the
Southern Greater Yellowstone Area Date: 10/01/98 09/30/03

	FY 99	FY 00	FY 01	FY 02	FY 03
<u>Personnel (FTE's)</u>					
Taylor	0.65	0.65	0.65	0.65	0.65
Ponds	1.0	1.0	1.0	1.0	1.0
Lamb	0.25	0.25	0.25	0.25	0.25
Burkardt	0.2	0.2	0.2	0.2	0.2
Haire	0.8	0.8	0.8	0.8	0.8
Sexton	0.3	0.3	0.3	0.3	0.3
McCrory	0.5	0.5	0.5	0.5	0.5

Personnel (Costs in thousands)

Taylor	\$53	56	59	62	65
Ponds	\$56	59	67(GS12)	70	73
Lamb	\$23	24	26	27	28
Burkardt	\$00	11.5	13	14	15
Haire	\$00	41(GS11)	43	45	47
Sexton	\$14	15	15.5	16.5	17
McCrory	\$18	19	20	20.5	21.5
Subtotal	\$164	225.5	230.5	255.0	266.5

Operations (Costs in thousands)

Base	\$24	15	18	19	17
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Totals (In Thousands)

\$188	240.5	248.5	274	383.5
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Total Project Costs (In Thousands): \$1234.5

The approval page format and content is attach. If animals are being handled or disturbed, a signature is required from the Chair of the Institutional Animal Care and Use Committee. If statistical procedures are being used, the Section Leader is responsible for obtaining review by a qualified statistician.

Submitted By: _____ Date _____
Jonathan Taylor, Research Social Scientist
Social, Economic and institutional Analysis Section
Midcontinent Ecological Science Center

Approval and Concurrence

Check One

Yes

No

Needs review by Institutional Animal Care and Use Committee

Yes

☐

No

☐

Needs Review by Statistician

Project Plan Statistically Sound

Concurrence: _____

Statistician	Date
--------------	------

Peer Reviewers: Jim Griffin, National Elk Refuge, Jackson Wyoming
Maureen Donnelly, Colorado State University
Earl Ekstrand, Economist, US Bureau of Reclamation
Lou Wheschler, Public Affairs, Arizona State University
N. Joseph Cayer, Public Affairs, Arizona State University

Section Leader: _____ Date _____
 Berton Lee Lamb, Leader
 Social, Economic and institutional Analysis Section
 Midcontinent Ecological Science Center

Center Director: _____ Date _____
 Rey Stendell, Director
 Midcontinent Ecological Science Center

Appendix A

Study 2: Institutional Analysis

Institutional analysis is intended to examine the “outside the model” processes that are essential for successful decisionmaking. Institutions are the legal, political and administrative structures and processes through which public policy decisions are made (Ingram et al 1984). Thus, institutional analysis is the study of institutions to discern rules and predict behavior. Interest in institutions as keys to decision processes has increased in recent years as institutions have become larger, more complex, more autonomous, and therefore more influential in political decision making (March and Olsen 1984).

Ostrom (1986) and others have emphasized the importance of multiple levels in institutional analysis. For example, in a given situation the analyst might identify operational choice, collective choice, and constitutional choice as levels of analysis (Ostrom 1986). One or a combination of levels may be appropriate areas of investigation, but it is essential to maintain clarity about the level at which the situation or decision is assessed. Ostrom (1986a) argued for the articulation of a common set of variables for analyzing all types of institutional arrangements to allow for a coherent theory of institutional behavior. Eight clusters of variables were proposed: (1) participants; (2) positions; (3) outcomes; (4) action-outcome linkages; (5) information; (6) control exercised by participants; (7) costs and benefits assigned to outcomes and actions, and (8) the number of iterations of the situation itself.

Ingram and her colleagues (1984) focused on establishing guidelines and standards for institutional analysis in water resource planning. They emphasized the dynamic nature of institutional settings and the importance of actors and their roles and incentives in decision processes. While acknowledging the normative components of institutional analysis, they argued that the factors influencing normative elements can be described and evaluated.

Gough and Ward (1996) argued that environmental decision making is characterized by uncertainty and risk and that decision support systems can mitigate for these factors by providing better information, greater objectivity, and higher efficiency. Decision support systems can be thought of as understood institutional processes.

In endeavoring to understand institutional processes, Chisholm (1995) recognized the primacy of the problem solving function of institutions and proposed a theory of institutions based on that function. In Chisholm’s (1995) view, institutions exist only in response to perceived problems and without problems the institutions would have no reason to persist. This is a little like the March and Olsen (1984)

metaphor of policy problems being like garbage cans—the idea that problems float around looking for solutions and they tend to do that by attaching themselves to an organization. Davis and Davis (1988) used an institutional analysis to investigate change in public lands policy. They noted that making public lands policy is marked by the existence of a greater array of policymakers—both government and non-government—engaged in advocacy coalitions. While this complex process can allow multiple points of access for citizens, it is a bewildering mixture of organizations and problems looking for a connection. One factor that Davis and Davis (1988) found that might bring some order to this swirling, unpredictable mass is that advocacy coalitions “possess internally consistent belief systems which provide a rationale for action” (Davis and Davis 1988:4). Davis and Davis (1988: 18-19) found that in the midst of this process land management agencies often play the role of Broker, connecting problems, organizations, and solutions. It could be expected that organizational roles are also important aspects of the behavior of other players in the garbage can process.

In 1983, the U.S. Fish and Wildlife Service developed a procedure for assessing organizational roles. The procedure, known as the Legal Institutional Analysis Model (LIAM), was developed Lamb (1980) and Wilds (1990). The LIAM is a computer-based model that assesses the political aspects of natural resource conflict (Lamb 1987). The LIAM provides decision-makers with a means to assess the roles, needs, and power of organizations involved in a natural resource dispute (Taylor and Lamb 1989; Lamb and Taylor 1990). Initially, the LIAM was developed for water resource management conflicts. However, the LIAM can be used for other natural resource problems (Lamb and Hindman 1984). The model offers the opportunity to develop an understanding of the organizations involved in natural resource management conflicts. One of the benefits of the LIAM for the resource manager or stakeholder is that it packages knowledge from social science into a method for systematically diagnosing conflicts. The LIAM measures two variables: 1) sources of agency power (e.g., legal authorities, physical control of the resource, constituency, and expertise); and 2) primary decision roles. The model identifies which roles respondents perceive to be present and weighs each role in light of various power factors.

Organizations are remarkably consistent in bargaining situations. The behavior of each organization in a conflict is likely to be consistent with the organization's traditional behavior (Wildavsky 1975). Traditional behavior is determined by mission, experience, and support groups (Lamb 1976, Lamb 1980).

The LIAM expects that organizations will behave according to a combination of four roles: Advocate, Guardian, Broker, and Arbitrator (Table 1). To measure organizational behavior, the LIAM asks a series of questions about each role (Table 2). First, Advocates demand change in the traditional decision processes. Advocates are agencies that call for a change in the status quo approach to natural resources management (Wildavsky 1975). They react to management

proposals from others. They may rely on "crusading" and data analysis to advance their position. The factor that distinguishes the Advocate is that they challenge any agency that seeks to impose a developmental or economic-progress philosophy on a problem (Lamb and Lovrich 1987).

Table 1. Attributes of each role in the LIAM. The Attributes cells list the variables that are measured for each role type. The LIAM asks at least two questions to measure each variable.

Role Type	Attributes	Role Type	Attributes
Arbitrator	1) Prefers Formal Processes 2) Desires Objective and Technical Information 3) Desires Documentation of Need	Broker	1) Desires Negotiation 2) Favors Political Considerations 3) Distributes Benefits
Advocate	1) Prefers Change from Traditional Processes 2) Prefers Preservation Values 3) Reacts to Proposals 4) Values Nature	Guardian	1) Prefers: Economic Approaches Traditional Processes 2) Values Markets 3) Physical Control of Resource

Second, guardians seek to protect the status quo especially by relying on time-tried decision processes. Guardians attempt to protect themselves and their constituencies from interference, and are interested in preventing challenges to their routines or plans. Guardians work against change in management practices, or project design (Wildavsky 1975). The normal routine for these agencies is interest group consultation or public participation with established clients. Moreover, Guardians profit from well established routines and bargaining processes because they have influential supporters who understand existing decision rules (Beckett and Lamb 1976; Lamb 1976; Lamb 1980).

Table 2. Each role in the LIAM is defined by several attributes. The LIAM contains three questions to measure each attributes. Questions displayed to the respondent are chosen at random from a library of possible questions for each attribute. This table shows one of the questions used to measure a single attribute for each role.

Role Type	Attribute Measured	Question	Measure
Broker	Desire to Negotiate	This organization will promote a negotiated solution in this conflict	5 point Likert scale range from Strongly Agree to Strongly Disagree
Arbitrator	Preference for Formal Processes	In actions like this one, does this organization prefer formal, structured decision processes?	5 point Likert scale range from Almost Always to Almost Never
Advocate	Promotes Change in Traditional Decision Processes	Does this organization urge change from "traditional" land, wildlife, or water resource management practices in actions such as this?	5 point Likert scale range from Almost Always to Almost Never
Guardian	Promotes Economic or Market Processes	In actions such as this one, this organization urges primary consideration of market values.	5 point Likert scale range from Almost Always to Almost Never

Third, brokers seek to manage decisions through tradeoffs and bargaining. Brokers have the ability to facilitate bargaining. They are in a position to help or hinder the planning and implementation process. In bargaining they tend to rely on cost-benefit analysis, mechanisms for controlling resource allocation, and to

some extent political considerations. The latter is important because of the nature of the agencies' support groups. The Broker strategy is to guide the decision making in order to maintain the balance-of-power (Beckett and Lamb 1976; Lamb 1976; Lamb 1980).

Finally, arbitrators endeavor to make objective, court-like decisions. Arbitrators typically have statutory authority to: (1) establish management plans or regulations, (2) establish the guidelines for preparing plans, or (3) direct the implementation of plans undertaken by others. They rely on data collected by others and make authoritative allocations after hearing evidence from all sides.

The results of the role analysis are presented on a role map. Analysts use the role map to understand the interaction of the various roles. In a pattern of behavior something like the advocacy coalitions identified by Davis and Davis (1988) advocates on one side and guardians on the other adjust their behavior to accommodate the presence of an arbitrator or broker. Advocate agencies often develop alliances with arbitrators because the arbitrators rely on advocates for information. For example, advocates often provide the opening to initiate planning or the support around which to build a consensus. Guardians often pursue holding actions or seek to use their constituency to show injury from an advocate's proposals.

Parties do not always assume the most extreme roles. There may be several reasons for this. First, an organization may have a history of moderate behavior or a low level of interest in the conflict. Second, an organization may have a particularly charismatic leader who has a moderate view of the organization's mission. Such a leader might be able to overcome an organization's otherwise extreme tendency (Kasza 1987). Finally, a party may be so politically weak that it is unlikely to play a major part in the conflict and, therefore, assumes a moderate position.